

ABSTRACT

A Rankine cycle system is provided in which the amount of water supplied to an evaporator (12) and the rotational speed of an expander (13) are controlled so as to make the temperature of steam at the outlet of the evaporator (12) coincide with a target steam temperature. When the amount of water supplied to the evaporator (12) is decreased stepwise, the temperature of the steam at the outlet of the evaporator (12) increases slowly and converges to a predetermined temperature. When the rotational speed of the expander (13) is decreased stepwise the steam temperature increases quickly, although the increase is temporary. It is therefore possible, by the combined use of control of the amount of water supplied to the evaporator (12) and control of the rotational speed of the expander (13), to make the steam temperature at the outlet of the evaporator (12) coincide with the target steam temperature with good responsiveness and high precision, thereby maximizing the total efficiency, which is the sum of the efficiency of the evaporator (12) and the efficiency of the expander (13). In this way, the temperature of a gas-phase working medium generated in the evaporator (12) can be controlled at a target temperature with good responsiveness and high precision.